



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2014-1077; Special Conditions No. 25-609A-SC]

Special Conditions: Dassault Aviation Model Falcon 6X Airplane; Design Roll Maneuver.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; amendment.

SUMMARY: These amended special conditions are issued for the Dassault Aviation (Dassault) Model Falcon 6X airplane. This airplane will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport-category airplanes. This design feature is electronic flight controls that affect maneuvering. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: This action is effective on Dassault on [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT: Todd Martin, AIR-621, Materials and Structural Properties Section, Technical Innovation Policy Branch, Policy and Innovation Division, Federal Aviation Administration, 2200 S. 216th Street, Des Moines, Washington, 98198-6547; telephone and fax 206-231-3210.

SUPPLEMENTARY INFORMATION:

Background

On July 1, 2012, Dassault Aviation applied for a type certificate for their new Model Falcon 5X airplane. Those special conditions were issued on February 17, 2016 (81 FR 7965).

However, Dassault has decided not to release an airplane under the model designation Falcon 5X, instead choosing to change that model designation to Falcon 6X.

In February of 2018, due to engine supplier issues, Dassault extended the type certificate application date for their Model Falcon 5X airplane under new Model Falcon 6X. This amendment to the original special conditions reflects the model-name change. This airplane is a twin-engine business jet with seating for 19 passengers and a maximum takeoff weight of 77,460 pounds. The Dassault Model Falcon 6X airplane design remains unchanged from the Model Falcon 5X in all material respects other than different engines.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Dassault must show that the Model Falcon 6X airplane meets the applicable provisions of part 25, as amended by Amendments 25-1 through 25-146.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Dassault Model Falcon 6X airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Dassault Model Falcon 6X airplane must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.17(a)(2).

Novel or Unusual Design Features

The Dassault Model Falcon 6X airplane will incorporate the following novel or unusual design feature:

An electronic flight-control system that provides control through pilot inputs to the flight computer, thereby affecting maneuverability of the airplane as compared to conventional control systems.

Discussion

Current part 25 airworthiness regulations account for control laws for which aileron deflection is proportional to control-stick deflection. They do not address nonlinearities or other effects on aileron actuation that may be caused by electronic flight controls. Because this type of system may affect flight loads, and therefore the structural capability of the airplane, specific regulations are needed to address these effects.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Discussion of Comments

The FAA issued *Final special conditions, request for comment* Special Conditions No. 25-609-SC for the Dassault Model Falcon 5X airplane, which was published in the *Federal Register* on February 17, 2016 (81 FR 7965). No comments were received, and the special conditions are adopted as proposed, with amendments.

Applicability

As discussed above, these special conditions are applicable to the Dassault Model Falcon 6X airplane. Should Dassault apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model of airplane. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Dassault Model Falcon 6X airplanes.

In lieu of compliance to § 25.349(a), the following conditions, speeds, and cockpit roll-control motions (except as the motions may be limited by pilot effort) must be considered in combination with an airplane load factor of zero, and of two-thirds of the positive maneuvering factor used in design. In determining the resulting control-surface deflections, the torsional flexibility of the wing must be considered in accordance with § 25.301(b).

1. Conditions corresponding to steady rolling velocities must be investigated. In addition, conditions corresponding to maximum angular acceleration must be investigated for airplanes with engines or other weight concentrations outboard of the fuselage. For the angular acceleration conditions, zero rolling velocity may be assumed in the absence of a rational time-history investigation of the maneuver.
2. At V_A , sudden movement of the cockpit roll control up to the limit is assumed. The position of the cockpit roll control must be maintained until a steady roll rate is achieved, and then must be returned suddenly to the neutral position.
3. At V_C , the cockpit roll control must be moved suddenly and maintained so as to achieve a roll rate not less than that obtained in special condition 2, above.

4. At V_D , the cockpit roll control must be moved suddenly and maintained so as to achieve a roll rate not less than one-third of that obtained in special condition 2, above.

Issued in Kansas City, Missouri, on January 13, 2022.

Patrick R. Mullen,
Manager, Technical Innovation Policy Branch,
Policy and Innovation Division,
Aircraft Certification Service.

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